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AUTHOR Lacy, Denise A.; McKay, F. Ann
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ABSTRACT

Assessment of severely multiply handicapped children was completed via formal and informal assessment with data covering medical, ophthalmological, auditory, and educational aspects. Visual functioning was evaluated by considering the type of visual stimulus experienced, varying visual tasks, and student motivation and ability. Auditory evaluation encompassed sound awareness, discrimination, recognition, and comprehension. A co-active motor-movement component is then begun by moving the child's body to produce awareness of his/her own body and promotes a trusting relationship between student and teacher. Games in five areas (gross motor, socialization, communication, affective development, and group awareness) are individualized for each student based on assessment results. (Sample objectives and charting processes for several games are presented, along with a glossary and a list of screening tests and assessments.) (CL)

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MOTIVATION PLUS

(Assessments and Games for Severely Multiple Impaired Children)

Denise A. Lacy

F. Ann McKay

(Paper presented at CEC 61st Annual Convention)
Detroit, Michigan - April 4 - 8, 1983

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Knowledge of many theories of human development is necessary for the teacher of severely multiply impaired child, to develop a highly motivational classroom atmosphere. An eclectric theory approach to the teacher means that one can work diligently to develop a program using the principles of operant conditioning (Thorndike, 1971) but fail due to the students motivational level, his/her lower needs may not have been met; safety, hunger, love, shelter (Maslow, 1954). Another example that calls for teacher flexibility is the administration of a well planned reinforcement schedule (Skinner, 1971), no matter how consistently reinforcements are given, the student does not progress. The student may not be motivated to perform because the task is above or below their cognitive development level (Piaget). A resevoir of human development theory has much ultility because each child is so unique that many methods are needed to top their optimum conditions for learning. With these educational philosphies and theories in mind we begin to develop high motivation activities by assessing each student's developmental level.

Prior to the development of any goals/objectives per student, an all inclusive data collection/needs assessment for the total child concept was necessary.

This assessment process for our students was approximately three-four weeks. During this time we received medical reports, (medical diagnosis, opthalmological, audiological); rendered formal assessment scales, and devised and administered informal teacher evaluation methods, incorporating observation in various environmental settings.

We first designated possible primary and secondary handicapping conditions, which would influence the learning modalities for each individual student based on the medical reports.

MEDICAL DATA:

The medical reports included diagnosis as: Lowes syndrome, encephalopathy, hydrocephaly, spastic quadriplegia, cerebral palsy, and convulsive disorders.

OPTHALMOLOGICAL DATA:

Information from these reports indicated visual acuity such as: light perception only, myopic astigmatism with glasses prescribed, possible peripheral vision only, an enucleated right eye were the extreme visual handicapping conditions. Other diagnosis included varying degrees of myopia and hyperopia and health conditions of the eye, (normal, scarring of retina, cataracts, glaucoma, etc.).

AUDIOLOGICAL DATA:

The audio metric evaluation revealed auditory responses as adequate for programming, possible unilateral high frequency loss, and profound to severe sensori neural hearing loss, bilaterally.

FORMAL AND INFORMAL ASSESSMENTS:

We chose the Callier-Azusa Developmental Scale as our comprehensive diagnostic tool. This assessment suggested the teacher as evaluator and was designed for the severly/profoundly handicapped/blind-deaf population (Callier-Azusa, 1978). This scale provided us with data on emerging and/or present functioning levels of our students in the areas of perceptual motor, cognition, communication, social and daily living development. It also served as an evaluative device for both the pre and post condition testing.

The pre-test was administered in the Summer of 1982 during the onset of a new school year, with the post-test given approximately ten weeks afterwards.

As a result of administering the Callier-Azusa Developmental Scale, our students were divided into two distinct groups. Group one's level of overall functioning ranged from one to six months. Group two's level of functioning ranged from eight to eighteen months.

The Callier further identified four areas of major deficiencies: auditory, visual, perceptual motor, and cognition.

Perceptual and cognitive development, and maturation factors of the individual has been compatibly linked with vision (Barraga, 1979). Audition is considered to be a distance scanning sense, and is the primary channel for language acquisition and interpersonal communication (Myklebust, 1967). As a result, further visual and auditory testing were important because they are primary modes of learning and usually easy to test within the classroom.

Visual Assessments:

Since many factors influence visual functioning, we concentrated on the following three:

(Barraga, 1979)

1. Visual Stimulus Experienced:

   What could we do to provide opportunities to promote looking?

2. Varying Visual Tasks:

   How could we provide various conditions (environments) in which the student had to perform?

3. Motivation and Ability:

   How could we create times for their progressive development perceptually and congnitively mixed with visual ability consistently?

Visual functioning develops in correlation to experience based on performance in a variety of environments. Consequently, an individual will not respond to visible stimuli appropriately beyond his level of visual development.

Informal testing was devised to solicity responses on the following three levels that overlap in the visual mode process, (Efron/DuBoff, 1975, Barraga/Collins, 1980):

1. Sensation:

   Reception of light/form by the retina. (Images are transformed to impulse by retina and carried by optic nerve to brain.) Any malfunction is any component in this area meant a decrease or absence of sensation.

We used a flashlight, penlight, ceiling lights, natural indoor/outdoor lighting, darkened room; various intensities and colors, to invoke a response/recognition to the presence/absence of the lights (blinking, startle, eyes/head turning, change in level of activity/behavior). Further sensation testing included, but was not limited to assessing the ability of each student to discriminate details of objects as specified distances.

2. Visual-Motor:

a) Brain directing and focusing the eyes (accomodation).

b) The ability to coordinate sight with other parts of the body.

a) One activity that was used to test accomodation skills was to present the stimulus at one point (alternating near and far distances) then simultaneously present another stimulus at a different point, while concealing the first. A successful response would be the students ability to redirect and focus his/her sight from one stimulus to the other. Other activities include tracking a moving object and the eyes convergence on an object.

b) Visual-motor skills also include walking, reaching, striking, picking up, placing, and catching. Due to the complexity of muscular involvement in severely multiply handicapped individuals additional evaluation and consultation with an occupational or physical therapist is recommended.

3. Visual Perception:

The ability to intrepret what is seen.

This skill is based on prior learnt experience.

In addition to testing visual functioning effectively we realized sustaining motivation for severely multiple impaired students would be an important component to their learning. Teaching them to begin to use their vision (including any residual vision) is developmental and is learned by doing, moving, and interacting with objects/people in the environment. Which meant discovering items of interest that induced an innate response, such as the smiling of a blind infant/child, (Freedman, 1964).

We found it necessary to consider varying degrees of visibility for our low vision student. In assessing this area of environmental influences for optimal learning condition; we found presenting light from behind aided some students. One in particular, the peripheal vision needed added light intensity. An intensity lamp was directed on the task. With this added variable as an influence on the environment optimal learning conditions were increased, and the student gave spontaneous responses.

According to Barraga (1967) visual functioning of a child is primarily developmental and can be improved through systematic training. In assisting a child to develop his/her visual ability to their fullest extent, we as educators, must understand:

1. Visual functioning is not innate or automatic, but developed through various experiences.

2. Visual acuity measurements do not necessarily determine visually ability.

3. Visual functioning of the individual's ability is not necessarily related to their degree of impairment. (i.e. cataracts of the eye doesn't necessarily mean no useful vision.)

One thing to remember after assessing any student's vision, is that the child needs to be exposed to a rich stimulation oriented environment. Assistance in visual training at an early stage of development, the easier it will be to learn, (Efron and DuBoff, 1975).

Auditory Assessments:

The auditory testing component consisted of sound stimulus presented in various locations, (right, left, above, below, etc.) and distances, (1" - 9') from the student. The utilization of three types of auditory stimuli were used; gross sounds, (environmental/toys), music, and speech.

The general developmental processes of hearing we tested were:

1. Awareness of Sound:

   a) Detection of the absence/ presence of sound.

   b) What we looked for primarily was the reflexive response to sound. (i.e. drum-startle, blinking, body jerking).

We specifically used a selection of calibrated toys, environmental sounds labeled under mild/moderate, severe and profound hearing loss headings.

TOYS

Calibrations are not exact, loudness depends on activation by person and surface or background.

Toys	Manufacture	Direction
	50db Level	
Rattle Pals	Child Guidance	Shake hard back/forth
	60-70db Level	
Happy Apple	Fisher Apple	Shake/Roll
Bells	----------	Shake
Wooden Clacker	Creative Playthings	Bang together
	70-80db Level	
Porcupine	Space Lanco	Squeeze
	80-90db Level	
Ping-pong ball and a coffee can	----------	Drop from 3"-6" above 1 lb. Metal can
	Over 90db Level	
Cymbals	----------	Bang together hard

Environmental Sounds (Robbins, 1964)

Moderate/Mild:

Clock Ticking
Water flushing
Knock at door
Paper tearing
Corn Popping
Human sounds: cough, whistle, voice

Severe:

Vacuum cleaner
Telephone
Clapping
Alarm clock
Piano
Typewriter
Animal sounds-dog barking
Human sounds-group singing

Profound:

Audience applauding
Door banging
Heavy objects dropped on hard floor

Information from this informal assessment in conjunction with audiological reports gave us an approximation of the possible auditory functioning level of each student. This was used to determine an optimal condition for controlling auditory learning within our classroom setting, using, the techniques of structure and saturation.

Other areas for testing included:

1. Discrimination of Sounds:
   (Gross, music, speech) denoting sounds are different.

2. Recognition:

   Associate sound with its source, labeling and attaching meaning to sound.

3. Comprehension:

   (Final and highest level of auditory training) using auditory stimuli meaningfully and spontaneously, (memory, sequencing, localization, language development).

Robbins, (1964) states that the response to sound and the building of auditory language in general, is dependent on the functioning of three inter-related systems.

1. Sensory System: (outer, middle, inner ear)

   Mechanical impulses are converted to electrical impulses, which are the languages of the brain.

2. Central Nervous System: (8th Cranial Nerve)

   Interpret and reacts to the sensory stimulus.

3. Psychological Process: (the brain)

   The sensory and central nervous system together function and interprets the stimulus.

The educators must be aware of facts that will influence/impede hearing such as:

a) Damage/dysfunction on the hearing mechanism.
b) The severity of damage.
c) Age at onset of the disorder.
d) Personality/intelligence of child.
e) Amplification aides.
f) Providing experiences for development.

Vision and hearing working together, so assessing and instructing of both areas are vital components. As Frailberg (1966) has stated vision unites the sound and tactile qualities of objects in early experiences of the child. Vision insure "The Thing" (out there in the environment), as a picture, "The Thing" grasped and heard brings about identity of an object. Various experiences with "The Thing" out in the environment will later lead to the construction of an object concept as well as reinforced visual aid auditory functioning. These constructive experiences provided by the teacher effectively, will enhance development for these children in all areas of development. The child sees, hears, and reaches out for the world; it's through motoric exploration that the child discovers himself and the world around him.

CO-ACTIVE MOVEMENT-MOTOR COMPONENT:

Why co-active movement; what does it do?

Van Dijk (1971) feels these children are unable to integrate fragments of experience to a whole, which make establishment of an organized ("unitary ego") individual difficult. The sensorily deprived child, in order to obtain and keep a stable relationship with the world is reinforced in being together with the "caretaker" person. This relationship is basically for structuring his world as it is with normal infants. The severely multiply impaired do not generalize, imitate or differentiate between self and non-self.

Since these children are so absorbed in themselves, prior to any development training (per se), we must enter their realm and assist them into opening up, coming out the isolation of their bodies through activities. When the child has experienced opportunities to handle "things" in their motor-qualities, then try to crystalize this into a gesture. This gesture becomes representational of the object. (Van Dijk, 1971) (Sopers, 1971).

Through moving a child, he becomes aware of his own body; we started with moving together with some of our own students, who were still isolated into their own body and self-stimulating behaviors, (movement together - co-activity). This gives the child the opportunity to learn about his body (it moves) as well as the existence of another person, (due to close contact and motion). It also established a climate of trust; wherein the person to person relationship could grow, (Erickson's First Stage of Development). We have to show the child that this relationship can be a source of pleasure and security; (Southwell, 1971). This matoric activity is "The Thing" out there in the child's world. If the child is able to recognize this motoric component, asociate it

with the object (thing), identify it with the object (person) using the movement referring to the object; then he has made a gesture (communicated), (Sopers, 1971).

Special components of the Co-active Movement activity are:

1. Establish a routine daily basis, same time, same designated area.
2. Signal for beginning and ending of activity: visual, auditory, or tactile cue.
3. Rythmic Movement:
   a) Create a movement for a student who has no movement.
   b) Students with movement, enter their world by imitating their movement and make this your initial co-active movement. Gradually build on the activity from this point. Make sure you use the initial movement to conclude the activity.

As special educators of severely multiple impaired students, we know the importance of an intimate relationship with a trusted person, for motivation and growth of a communication system. These children after obtaining a system of communication, will need lots of stimulation to venture about and explore their environment, experiences, activities, games, and field trips.

Our goal is to influence and develop the children's lives in as many everyday situations as possible. Sensori motor learning, by ways of tactile, visual, auditory, proprioceptive, and kinesthetic stimulation, all help to establish the feeling of security. This, in turn, builds up the child's schemes of experience from which is adaptation in the world develops. (Bladergroen, 1971).

GAMES

The general headings for our objectives were:

1. Group Awareness
2. Socialization
3. Communication
4. Affective
5. Gross Motor

These objectives were stated as follows and were individualized per student with specific criterion for acceptable response:

1. Each student will wait appropriately to take his/her turn in game without immediate instructor intervention for behavior. (Behavior was defined in terms of individual student inappropriate self-stimulating action.)

2. Each student will follow the games rules/instruction.

3. Each student will praise peer for playing.

4. Each student will express, (vocally, facially, motorically, verbally), pleasure of participation in game.

5. Each student will allow physical contact with objects in game, with instructor manipulation of motoric response when needed.

6. Each student will respond appropriately to auditory, visual, and tactile cues.

Each individual game objective would incorporate the following deficient areas of development based on assessment.

1. To increase visual/auditory development through awareness, recognition and discrimination of cues:

2. To increase reaching and grasping skills for gross and fine motor development by responding to visual/auditory objects in the game's environment.

3. To promote and maintain social interaction with peers and adults through vocalization, facial, and gestural expressions.

4. To increase wheelchair mobility needed for further independence of ambulation.

Balloon Game

The Balloon game provided the following sensory experiences:

1. Visual
   a) Colors of balloon was a device for the students to look.
   b) Size of balloon was another added feature.
   c) Various placements of balloons in a designated area - confined their visual environment.

2. Auditory
   a) Sound of a touched balloon.
   b) Sound of a grasped balloon.
   c) Sound of a bursting balloon.
   d) Sound we added for blind students to locate balloon.

3. Tactile
   a) Touch of texture of balloon with/without air.
   b) Touch of texture mits/gloves/ holders as adapted devices for obtaining and holding onto the balloon.

4. Perceptual Motor
   a) Reaching for balloon.
   b) Grasping.
   c) Holding.
   d) Bursting.

5. Postural Control
   a) Head Position.
   b) Upper trunk control.

6. Proprioceptive/Kinesthestic
   a) Movement of body.
   b) Bursting balloon in hand sensation.

The other materials for the game were velcro holders, gloves and mits designed by our Occupational Therapist, for those students who needed added support for gross motor responses. The game was played once a week. The students, as a small group, participated in this game whose main goal was to obtain a balloon and burst it, while having fun doing it.

Individual - Sample Data - Balloon Game

Student A:

1.	Look at balloon	X	0	X
2.	Look in direction of balloon.	NR	0	X
3.	Visually attend (1 Sec.)	NR	1/2 Sec.	1/2 Sec.
4.	Attend to voice without self-stimulating.	NR	X	X
5.	Sensation Level Response (blinking, startle, vocal, laugh, and smile)	Blink	Smile	Laugh
6.	Manipulated to reach.	X	X	X
7.	Manipulated to grasp.	X	X	X
8.	Manipulated to burst	X	X	X
9.	Maintain texture glove on hand.	X	X	X
10.	Touched balloon	X	X	X
	GAMES	1	5	10

Scoring Data:

X - Independent with one initial cue.
V - Verbal cuing to perform task.
O - Gestural cuing to perform task.
X - Physical cuing to perform task.
NR - No response to perform task with added cuing.

This sample data chart exhibits first, fifth and tenth games of this particular student's responses.

We also used a discrimination formula to determine if each student had an even distribution of easy and difficult objectives. A +.40 or better is considered an effective distinguishing different. (Hopkins/ Antes, 1978).

Sample Data - Discrimination Chart

Student A:

.40	.20	.60	.60	*-.20	.60	.50	.80	.20	.60
1	2	3	4	5	6	7	8	9	10

The asterisk (*) box indicates a day this student had difficulty in responding to the task, due to possibly environmental interference or an internal condition, (i.e. discomfort).

Discrimination Formula:

$$D = \frac{U-L}{N}$$

D = Discrimination index.
U = Number of correct responses.
L = Number of incorrect responses.
N = Number of total responses.

Balloon Game

Total Group - Sample Data Chart

Objective:

Each student will wait appropriably to take his/her turn without immediate instructor intervention/or self-stimulating.

Objective "A"

Student:		Score:		
	Head up	X	X	X
A	Hands down	✓	X	X
	Head up	✓	✓	X
B	Hands down	✓	X	X
	Head up	✓	X	X
C	Hands out of mouth	✓	X	X
	Head up	✓	✓	X
D	Fist out of mouth	✓	X	X
	Head up	X	X	✓
E	Hands down	✓	X	0
	GAMES	1	5	10

Scoring Code:

X - Independent

✓ - Instructor intervention delayed.

O - Immediate instructor intervention.

For the group objectives a different scoring procedure was used depending on specific criterion of student. A different discrimination index formula was also used to determine the distinguishing difference for the group as opposed to the individual.

Formula:

$$D = \frac{U}{Nu} - \frac{L}{Ni}$$

D = Discrimination index.

U = Number in group meeting criterion who answered correctly.

L = Number in group not meeting criterion.

Nu = Number in group which met criterion.

Ni = Number in group not meeting criterion.

Discrimination Chart

Group Objective A:

D-Value	.33	0	0	.25	.50	.50	.50	.50	1.0	1.0
Games	1	2	3	4	5	6	7	8	9	10

Sound Game

The sound game provided the following sensory experiences:

1. Auditory
   a) Sound awareness
   b) Sound discrimination of tones/pitch and rate.
2. Visual
   a) Visual stimulus match to sound cue.
   b) Look at peer participation.
3. Tactile/Gross Motor
   a) Touch sound stimulus.
   b) Push button with finger/hand.
   c) Reach for sound cue.

4. Socialization/Affective

   a) Facial - vocal expression of pleasure in playing the game.

5. Postural Control

   a) Maintenance of upper trunk/head control.

Game rules were: upon hearing sound tone in their unit box, student would activate button to send sound to peers unit box.

Sample Data - Sound Game

Scoring Code:

X = Independent (1 verbal cue)

✓ = Verbal cuing

\+ = Physical cuing

NR = No response

Objective:

Student B:

1.	Head up	X
2.	Postural Control	X
3.	Visual attend (look at stimulus)	X
4.	Auditory (react to sound)	✓
5.	Facial expression pleasure	✓
6.	Vocal expression pleasure	✓
7.	Hands down	✓
8.	Push button with fists	+

For the sound game a percentage formula that measures how easy the objectives were for the student to perform objectives was scored.

Formula:

$$Pe = \frac{Pr}{Pt} (100)$$

Pe = Easy index

Pr = Number of correct responses

Pt = Number of total responses

Sample Easy Measure Percentage

Student B:

P-Value	37.5	62.5	75.	50.	75.	62.5	50.	50.	87.5	100
Games	1	2	3	4	5	6	7	8	9	10

Ball Game

The sensory experiences the ball game provided were:

1. Visual - Initial look at instructor, Student will:
   a) Look at language cards.
   b) Look at direction of hanging ball.
   c) Look at hanging ball.
   d) Look at peer participation.
2. Auditory - Student will:
   a) Attend to instruction.
   b) Attend to verbal cheering from adults/peer to continue motoric response.
3. Language - Student will:
   a) Touch language cards to indicate desire to play.
   b) Touch/hit hanging ball to play game.
4. Gross Motor - Perceptual Motor - Student will:
   a) Use hand to touch card.
   b) Use hand/fist to hit ball.
   c) Reach in direction of ball.

The goal for the ball game was to get the student to communicate their desire to hit the hanging ball within a group setting. There were ten types of textured cards used, one was designed from colored nerf balls to visually match the hanging beach ball. The other card was designed from old beach ball material to match texture exactly by touch.

Sample Data - Student C

1.	Indicate desire to play	X
2.	Look at instructor	✓
3.	Look at card	O
4.	Look at ball	✓
5.	Hit ball	X
6.	Auditory attend	X
7.	Respond to audience praise	X
8.	Reach for ball	+
9.	Allow physical contact	X

Score Code:

X = Independent (1 cue)
✓ = Verbal cuing
O = Gestural cuing
\+ = Physical cuing
NR = No response to added cues

The formula we used for this game was to determine easiness also.

$$Pe = \frac{Pr}{Pt} (100)$$

Pe = Easy measure
Pr = Number of correct responses
Pt = Number of total responses

Sample Data - Easy Measure

Student C:

P-Value	77.	66.	22.	66.	44.	66.	33.	66.	66.	77.
Games	1	2	3	4	5	6	7	8	9	10

Along with our charting system, the games were video taped using a cassette VHS unit. This gave us immediate feedback objectively as to student responses, environmental conditions, and external factors which might have influenced student participation.

EVALUATION, MEASUREMENT AND TEACHER ACCOUNTABILITY

Our objective was to select an evaluation procedure that would elicit information on how a student responded to each objective. A means that would provide accurate data about student progress and program effectiveness, environmental conditions, and instructor influences. According to Hopkins and Antes (1978) an evaluation procedure is, "a process that assigns by rule a numerical description to observation of some attribute of an object, person, or event". Because the Callier-Azusa meets these criteria, we chose it as our pre and post test.

We used a team teaching approach so we were concerned how students response levels would be influenced by classroom changes. To minimize this influencing variable prior to and during the fourteen week game period, group socialization time alternated between the two classrooms. This increased the student's familiarity to both learning environments. Feelings of comfort, security, and trust were needed for our students' optimum performance.

Along with the sample charting and recording system located in the Games section of this paper, video cassette recorder/monitor served as a tool for additional data collection. Through the process of play back monitoring the games could be reviewed many times for discussion of individual student response and performance. Video recordings also served as an invaluable tool during assessment. Play back always revealed information that went unnoticed during the actual test.

An eclectic theory of human development enabled us to be flexible and achieve rewarding results from our students. Review of all medical records and ancillary reports aided in helping us to form a solid concept of the total child. Detailed assessments including formal and informal testing helped us to identify the environmental conditions within which

our students would be motivated to learn. Our pre and post test reflected substantial gains for groups I and II, over a fourteen week period. As educators, it is our responsibility to teach our students that learning can be a successful life long process. Through movement, love, and stimulation from the outside environment we have, "Motivation Plus".

GLOSSARY

Visual

1. Accomodation:

   Adjustment of the eye for seeing at different distances.

2. Amblyopia:

   A condition which occurs when one eye is much stronger than the other, or if the two eyes are not lined up together resulting in a loss of vision not traceable to any disease.

3. Binocular Vision:

   Use of both eyes simultaneously to focus on the same object, to fuse two images into one for correct interpretation.

4. Blind:

   Those who have only light perception without projection; and those who are totally without the sense of vision.

5. Convergence:

   Aiming of the two eyes towards each other to focus in on an object.

6. Cone:

   Light receiving cells concentrated in the central retina, concerned with detail and color discrimination.

7. Discrimination:

   Ability to make distinctions within/between visible things.

8. Enucleation:

   Surgical removal of an entire eyeball.

9. Field of Vision:

   The extent of physical space visible to an eye held in a fixed position looking straight ahead.

10. Focus:

    Adjustment of the eye(s) to converge the rays of light so as to achieve the clearest possible image.

11. Fovea:

    The central area of the macula where there is a concentration of cones, and where the clearest, sharpest vision is possible.

12. Fusion:

    The ability to perceive two dis-similar images seen by each eye into one single mental image.

13. Glare:

A quality of relatively bright light which causes discomfort in the eye or which interfers with visibility and performance.

14. Light Perception:

Ability to distinguish light from dark.

15. Light Projection:

Ability to determine the direction of a light source.

16. Macula:

The central area of retina including the fovea and extending around it comprising the point of most distinct vision.

17. Peripheral Vision:

Perception of objects, motion, color outside the direct line of sight.

18. Photophobia:

Sensitivity to/discomfort from light.

19. Residual Vision:

Any useable remaining vision which can be developed despite severe impairment in the structure/tissue of the eye or in some part of the visual system.

20. Retina:

The inner transparent membrane of the eye containing light sensitive nerve tissue.

21. Rods:

Retinal nerve cells primarily concerned with perception of light and movement.

22. Tracking:

Following with the eye(s)/head the movement of visible things with the body stationary or in movement.

23. Tunnel Vision:

Contraction of the visual field to an extent that only a small area of central visual acuity remains.

24. Vision:

The process of looking, seeing, and perceiving through the sense of sight.

25. Visual Awareness:

Knowledge that something visible is present in the visual field.

26. Visual Acuity:

Clinical measurement of the sharpest and clarity of vision for discrimination of fine details at a specified distance.

27. Visual Efficiency:

The degree to which specific visual tasks can be performed with ease, comfort, and minimum time, contingent upon individual/environmental variables.

28. Visual Field:

The area of physical space visible when the body, head, and eyes are in a stationary position.

29. Visual Functioning:

Use of vision to perform tasks which require visual orientation. (Is related to prior experience, needs, expectations of self and others.)

30. Visual Perception:

The ability to understand, interpret with meaning information received through the visual sense.

Auditory

1. Ambient Noise:

   Unwanted (irrelevant) background noise.

2. Aphasia:

   An inability to understand language due to specific brain damage; the child hears but does not understand.

3. Atresia:

   Absence of the ear canal of pinna often with absence of the eardrum and/or bones of the middle ear.

4. Audiogram:

   A chart plotting hearing level db (intensity, loudness) vs. frequency Hz (pitch).

5. Audiologist:

   A non-medical specialist in the science of hearing who evaluates and habilitates the hearing function of children; selects and monitors hearing aids.

6. Auditory Training:

   Process of teaching an individual to use their potential auditory capacity to its fullest extent.

7. Central Deafness:

   Interference with the neural pathways to the temporal lobes of the cerebral cortex of the brain, causing an inability to process auditory stimuli.

8. Cerumen:

   Wax secreted in the ear canal to lubricate the canal and trap dust. It may build up and block canal.

9. Conductive Hearing Loss:

   Hearing impairment due to damage of obstruction of the outer/middle ear in the presence of normal inner ear.

10. Decibel (db):

    The relative measure of intensity of loudness 0db is the softest audible sound heard, 130db is the loudest.

11. Eustachian tube:

    Helps equalize the pressure in the middle ear with atmosphere pressure by connecting the middle ear to the nasopharynx.

12. Frequency:

    Is the physical attribute of sound measured in cycles per sound (cps/Hz).

13. Functional Hearing Loss:

No indication of hearing loss on audiogram, yet individual is not able to use the hearing he has.

14. Glue Ear:

An accumulation of fluid in the middle ear.

15. Intensity:

Measured by decibels and is interpreted by the physician reference (i.e. 0.0002 dyne/cm^2).

16. Meniere's Disease:

Increased fluid pressure in the inner ear causing attacks of dizziness, tinnitus, and hearing loss (usually one ear).

17. Mixed Hearing Loss:

Symptoms of both a conductive and sensory neural loss in a child (same ear).

18. Otitis Media:

Inflamation or infection of the middle ear.

19. Otologist:

Medical doctor specizliaing in diagnosis and treatment of diseases and surgery of the ear.

20. Otosclorosis:

A hereditary bone disease causing a stiffening or fixing of the bones in the middle ear preventing the flow of sounds to the inner ear. (A conductive loss.)

21. Recruitment:

An abnormal rapid increase in loudness sensation (a sound may vary in loudness at certain levels).

22. Saturation:

Bombardment of sound in the environment (chaotic for easily distracted child).

23. Sensori-Neural Hearing Loss:

Damage in the inner ear (cochlea or 8th cranial nerve going to the brain stem; generally irreversible).

24. Serous Otitis Media:

Most common childhood disease. Malfunction of eustachian tube, builds up negative pressure in the middle ear; fluid is secreted in the middle ear, doesn't drain so it builds up.

25. Startle Response:

Present in newborns, at all ages if hearing is normal when a voice/sound is suddently heard at 65-70db or 80-85db white noise.

26. Structure:

Presentation of sounds under a control method.

27. Threshold:

Softest sound the child can respond to 50% of the time.

28. Tinnitus:

Ringing in ears.

29. White Noise:

Contains all the sound in the audible spectrum in random order.

DIAGNOSTIC/SCREENING TESTS/ASSESSMENTS

The following is a small selection of diagnostic/screening tests/assessments which can be used to obtain information by parent, teacher, psychologists or a combination of professionals (including parents) to assist in planning objectives/goals for the specific student. This information will be broken into the following headings:

1. Name of tool
2. Author
3. Publisher (if available)
4. Brief description of tool
5. Age appropriateness
6. Administrator
7. Assessment areas if needed

As a teacher I would select material to the tool most appropriate for that area to be assessed.

Pre-screening and Checklists:

1. Denver Pre-screening Developmental Questionaire

   W. K. Frankenburg 1975
   Ladoca Project & Publishing Foundation, Inc.
   East 51st Ave. & Lincoln
   Denver, Colorado 80216

   -Pre-screening Instrument -- identifying individuals for follow-up with Denver Developmental Screening Test.

   -3 months - 6 years
   -Parent
   -Social, Emotional, Concepts, Perceptual Motor

2. Child Behavior Checklist

   Dr. Richard N. Walker 1963
   Gesell Institute of Child Development
   310 Prospect St.
   New Haven, Conn. 06511

   -Checklist for parents to rate their children in 8 areas: energetic, fearful, anxious, social friendly, excitable, tense, cooperative, conforming, cheerful, expressive.

   -2.5 - 5.0 (EI suggested age 6-14)
   -Parent
   -Behavior areas as noted

3. Como Pre-School Checklist

   Como Special Program Unit
   St. Paul Public Schools
   St. Paul, MInn. 55117

   -Checklist of Skills, teacher checks off, will provide guidelines for curriculum planning.

-0 - 5 years
-Teacher/Parent
-Gross Motor, Fine Motor, Self-help, Socialization, Language

4. Caroline Developmental Profile

David L. Little
Technical Assistance Development System
625 W. Cameron Ave.
Chapel Hill, North Carolina 27514

-Criteron - referenced checklist -- It's purpose is to expose areas child is weak in. Each task is classified into subcatagories. It has a task description, developmental age, needed materials, criteria for passing (informal).

-2 - 5 years
-Teacher
-Fine Motor, Gross Motor, Perceptual Motor, Language

General Information:

1. Behavioral Development Profile

M. Donahue, J. Montgomery, A. Keiser, V. Roecker, L. Smith
Department of Special Education
Marshall-Powershick Joint School System
Marshaltown, Iowa

-Assess behavioral skills divided into 3 scales: communication, motor, social; items within each category are arranged according to age. This is a criteria reference device designed to measure the progress of each child in months -- used with guide. The guide lists behavioral objectives reduced into sequential steps and the activities to accomplish each objective. It identifies strengths and weaknesses.

-0 - 6 years
-Teacher/Person involved with student
-Communication, Social, Gross and Fine Motor Perceptual Motor

2. Cooperative Pre-school Inventory (CPI)

B. M. Caldwell 1970

-Tests basic information and vocabulary, number concepts, size, motion, color, time concepts, social function, object to classification, visual motor performance, following instructions, independance and self-help.

-3 - 6 years
-Teacher/Parent

3. Denver Developmental Screening Tests

K. W. Frankengurg, J. B. Dodds, A. Fondal 1970
Ladoca Project and Publishing Foundation, Inc.

-Assess delays in Motor, Physical, Social and Language Development.

-2 weeks - 6 years
-Professional Involved
-Social, Emotional, Language, Concepts, Perceptual Motor

4. Detroit Test of Learning Aptitude

H. Bake, B. Leland 1967

-Ten subtests including reasoning and comprehension, practical judgement, verbal ability, time and space relationship, numbers, auditory attention, visual attention and motor ability.

-3 years - Adult
-Teacher/Other Professional

5. Developmental Indicator for the Assessment of Learning

C. Mardell, D. Goldenberg 1975

-Tests gross and fine motor concepts, communication (speech/language), social and emotional development, perceptual motor.

-2.6 - 5.6 years
-Teacher

6. Pre-School Attainment Record

E. A. Doll
American Guidance Service, Inc.
Publishers Bldg.
Circle Pines, Minn. 55014

-Assess physical, social, intellectual functions in a global appraisal of children. This assessment contains eight categories of developmental behaviors for each category. There is an item for each 6 month age span, also a mean age for expected performance of behavior is provided.

-0 - 7 years
-Teacher/Professional, other
-Ambulation, manipulation, rapport communication, responsibility, information, ideation, creativity.

7. Callier Azusa Developmental Scale

Robert Stillman, Ph. D (et. al.) 1978
South Central Regional Center for Services to Deaf & Blind Children
2930 Turtle Creek Plaza
Suite 207
Dallas, Texas 75219

-Assessment for deaf-blind and severely/profound handicapped children, (particular to lower developmental levels).

-0 - 9 years
-Teacher/Parent/Aides
-Eighteen subscales in the following five areas of development, Perceptual Motor, Daily Living Skills, Cognition, Communications, Social.

Language:

1. Assessment of Children's Language Comprehension

   Carol Foster, June Giddan, Joe Stark 1972
   Consulting Psychologists Press
   577 College Ave.
   Palo Alto, Calif. 94306

   -Assessment uses a core vocabulary of fifty common words combined into 2-3-4 critical element phrases to determine difficulties in receptive language no oral responses.

   -2 - 6 years
   -Teacher/Parent involvement needed
   -Social, Language, Concepts, Emotional

2. Broch-League Receptive-Expressive Emergent Language Scale

   K. P. Bzoch, R. League
   Tree of Life Press
   Box 447
   Gainesville, Florida 32601

   -Investigates emergent expressible/receptive language and detects handicaps in language acquisition. It contains items for specific age periods. Six items for each month of the first year -- 6 items for each two month period, second year - 6 items for each four month period for the third year.

   -0 - 3 years
   -Teacher/Professional other with principal caretaker involved
   -Language, Speech, Concepts

3. Pre-School Language Scale

   Irla Lee Zimmerman
   Charles E. Merrill Publishing Co.
   1300 Alum Creek Dr.
   Columbus, OH 43216

   -Tests auditory comprehension, verbal ability, and articulation

   -1 - 7 years
   -Teacher/Other Professionals

4. Peabody Picture Vocabulary Test

   L. M. Dunn
   American Guidance Service, Inc.
   Publishers Bldg.
   Circle Pines, Minn. 55014

   -Measures work recognition (vocabulary)
   Auditory and visual skills required
   -Pre-School - beyond
   -Teacher/Other Professionals

Auditory and Visual:

1. Developmental Test of Visual Motor Integration (VMI)

K. Berry, N. Buktenia
Follett Educational Corp.
1019 W. Washington Blvd.
Chicago, ILL 60607

-Assesses the degree to which visual perception and motor behavior are integrated. Scores provide a visual-motor integration age equivalent.

-2 - 15 years
-Teacher/Other Professionals

2. Visual Efficiency Scale - Diagnostic Assessment & Observation Checklist

American Printing House for the Blind
Louisville, KY

-Assesses visual capacity, includes light perception, size, distance, color, binocular vision, peripheral, localization, tracking, visual spanning, eye-hand coordination, figure-ground discrimination, depth perception. It can be quite lengthy to administer, but gives a formalized structure account of child's vision and how he uses it.

-6 months - Adult
-Teacher

3. Test of Auditory Discrimination

Goldman, Fristoe, Woodcock
American Guidance Service

-Evaluates auditory discrimination under both quiet and background noise conditions. It does involve an initial "training" procedure to insure subject knows the word-picture association before testing.

-4 - Over
-Teacher

Behavior:

1. California Pre-School Social Competency Scale

S. Levine, F. F. Elves, M. Lewis
Consulting Psychologists Press
577 College Ave.
Palo Alto, CA 94306

-It is designed to measure the adequacy of inter-personal behaviors and degree of assumption of social responsibility in young children. Base in situational behaviors selected in terms of common cultural expectation, representing base competencies that are developed in the process of socialization.

-2 - 5 years
-Teacher

2. Pre-School Observational Schedule

Dr. Thomas Busse
Temple University
Rither Hall
Philadelphia, PA 19122

-Observation technique to assess pre-school social interaction with emphasis on play and aggressive behaviors (types of play include: solitary play, parrallel play, cooperative toy play, cooperative peer play, isolation, other). Aggressive behaviors: personal, physical attackes, taunting, threatening, destroying property of anothers labor, usurping property.

-Pre-Schoolers
-3 - 15 Minute periods during free play
-Teacher/Professional, Other

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Washington, D.C.: National Education Association, 1978.

Check one or more of the Following

Sound Response:

_____ Student's behavior indicates the Moro Response.

_____ Student's developmental level is approximately 0 - 4 months, according to reflects of responses.

_____ Student did not respond by blinking eyes.

_____ Student's development overlaps into two or more levels.

_____ Student gave startle response.

_____ Student's developmental level is exactly 4 - 7 months, due to eyes turning on lateral plane.

Instructional Controls:

_____ Present auditory stimulus to right side.

_____ Present auditory stimulus and visual cues.

_____ Present auditory stimulus on student's lateral plane.

_____ Present auditory at two feet.

_____ Present auditory stimulus above student's lateral plane at five feet.

_____ Stimulus can be presented to student at any angle.